

CLAIMS

1. (Amended) A light guiding panel which is made as a transparent substrate of a thin hexahedron shape and reflects source light that is incident through at least one side so that the light is emitted to the front surface of the substrate;

wherein countless minute recesses are formed by a sandblasting method in random shapes on the flat bottom surface of the substrate so as to disperse the source light to be guided to the front surface of the substrate, where the sandblasting method is controlled to ensure that injection amount of minute particles is constant with time through a process of forming the recesses so that the number of the minute particles impinging on a unit area of the bottom surface of the substrate in a unit time and the impact force on the bottom surface of the substrate by the minutes particles gradually increase as a distance from the side, through which the source light is incident, increases,

each of the recesses being too small to be seen with the naked eye and no seeable light spot by each of the recesses appears on the front surface of the light guiding panel when the source light is incident through the side of the light guiding panel, and

the countless minute recesses on the bottom surface of the substrate forming a gradation pattern that all of the density, the arithmetical mean derivation of the profile Ra, the maximum height of the profile Ry, and the mean value of the contour size of the recesses gradually increasing, as a distance from the side of the light guiding panel, through which the source light is incident, increases.

2. (Amended) The light guiding panel of claim 1, wherein the minute particles used for the sandblasting method are selected from the particles of size #100~#200.

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3. The light guiding panel of claim 1, wherein the average complexity of the contours of the recesses and a recess surface profile gradually increases as a distance from the vicinity of the side, through which the source light is incident, increases.

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4. (Deleted)

5. (Amended) The light guiding panel of claim 1, wherein when recesses are processed by using the sandblasting method, in order to maintain a constant amount of injected minute particles, minute particles are made to follow a stage of free-falling in a process for injecting the minute particles.

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6. The light guiding panel of claim 1, wherein the transparent substrate is made of acryl resin.

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7. (Deleted)

8. (Amended) A backlight apparatus using the light guiding panel claimed in any one of claims 1-3, 5 and 6, comprising:

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a tube optical source which is arranged parallel to and along at least any one side or both sides of the light guiding panel, and if electric power is supplied, generates light so that the light is incident into the light guiding panel through the side of the light guiding panel;

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a reflection hat which surrounds the optical source such that the light of the optical source is reflected into the light guiding panel;

a bottom surface reflection plate which is attached to the bottom surface of the light guiding panel so as to reflect light which passes through the bottom surface, back into the light guiding panel; and

a side reflection plate which is attached to sides of the light guiding

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panel, at which the optical source is not installed, and reflects light incident on the side reflection plate into the light guiding panel,

wherein without placing a diffusion sheet on the front surface of the light guiding panel, the backlight apparatus is used as a backlight for a transparent or translucent printed film or a liquid crystal display (LCD) unit.

9. The backlight apparatus of claim 8, further comprising:

an assembly frame which accommodates the light guiding panel, the tube optical source coupled with the light guiding panel, the reflection hat, the bottom surface reflection plate, and the side reflection plate, so as to form a single body apparatus.

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wherein without placing a diffusion sheet on the front surface of the light guiding panel, the backlight apparatus is used as a backlight for a transparent or translucent printed film or a liquid crystal display (LCD) unit.

- 5 9. The backlight apparatus of claim 8, further comprising:
an assembly frame which accommodates the light guiding panel, the tube optical source coupled with the light guiding panel, the reflection hat, the bottom surface reflection plate, and the side reflection plate, so as to form a single body apparatus.

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